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ABSTRACT

This study examined whether student attitude toward instructors was related to subsequent behavior such as the behavioral intention to take further courses with that instructor, and whether social desirability affected this relationship. Students completed instructor rating and social desirability scales. Principal components analysis and varimax rotation isolated six instructor rating factors. Students also participated in a mock preregistration procedure assessing their intention to reregister for the same, or different instructors. Results indicated that the first instructor rating factor, Instructor Skill, correlated .72 with intention to take further courses with that instructor. No other relationships or interactions were significant. (Author)

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Attitudes Towards Instructors, Social Desirability, and Behavioral Intentions[1]

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Student evaluation of instruction is becoming increasingly commonplace at all educational levels (U.S. President's Commission, 1970). There is a growing body of research regarding the reliability of such assessments, the degree to which such measures correlate with other variables such as achievement (Costin,F., Greenough, W.T. & Menges, R.J., 1971), and teacher-student similarity (Good & Good, 1973). Attitudes are assumed to be both responses and stimuli for further responses which both initiate and maintain behavior (Staats, 1967). Positive attitudes towards a particular subject matter, then, suggest that the student is likely to expose himself, and delve more deeply into the area than he would if attitudes were negative. Similarly, positive attitudes towards an instructor ought to imply that, given the opportunity, the student would be likely to take further study with the same teacher. Negative attitudes, conversely, should imply that the student is likely to avoid studying with an instructor in the future. It was the purpose of this study to test these expectations.

The monitoring of students' future choice of instructors generally imposes formidable procedural problems. Longitudinal studies of the problem may be affected by error variance from sources such as schedule contingencies, convenience, and other variables in the students' life which contribute to the selection of instructors. One way of assessing whether students are likely to continue study with an instructor which is free from the procedural complexities alluded to above is to determine their behavioral intention.

Fishbein (1971) has shown that actual behavior correlates as high as .90 with behavioral intention when that intention is a commitment to a highly specific behavior. Thus, a clear-cut measure of the students intent to take a further course with a particular instructor is likely to be highly correlated with whether a student actually does so. Since intention may be determined concurrently with the attitude measure, it is less likely to be contaminated with the convenience factors alluded to above.

Many questionnaires dealing with students' evaluation of instructors include items such as: "Would you take another course with this instructor?". While such an item appears to measure students' intention, the fact that it is embedded in a general attitude scale, and does not require any commitment on the students part to specific behavior makes it doubtful whether such a question can be considered a legitimate measure of intent. For that reason, in the present research behavioral intent was evaluated by an experimental manipulation in which students were asked to pre-register for next semester's courses, rather than just indicate their attitudes.

A further source of ambiguity in student ratings of instructors may be the social desirability variable. It is generally considered impolite to express strong negative feelings towards the work of another individual. Students with high tendencies towards responding in socially desirable

directions are, therefore, less likely to express criticism as frankly or directly as students with lower social desirability tendencies. Crowne and Marlowe (1964) found that high SD students rated a boring experiment significantly more favorably than students lower in SD as assessed by the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964). Furthermore, an interaction between social desirability and intention to re-register may be expected. Students may rate an instructor more favorably than they actually feel towards him due to high social desirability tendencies. However, their ratings may be unrelated to the intention to take further course work with that instructor since they can always find socially acceptable excuses for not doing so. Therefore, social desirability may act as a moderator between the intention to re-register for a course and evaluation of the instructor. Specifically, students high in social desirability and attitude are less likely to re-register for that instructor than those with comparable attitudes who are lower in social desirability.

Method

This study was carried out by administering an evaluation of instruction questionnaire to students in which social desirability (SD) items were embedded. A mock pre-registration survey was then conducted in which students were asked whether they wished to register for the same instructor, or a different one in the second term of the Educational Psychology course they were presently taking.

Procedure & Subjects

The rating scale used in this study was based on one reported by McKeachie (1971). The following modifications were made to that scale: 1) Items containing proper pronouns such as "he," were changed to read either "instructor" or "teacher," since some of the instructors used in the present research were female. 2) Items were omitted if the factor analysis results reported by McKeachie (1971) indicated that less than 10% of the total item variance was accounted for by the anlysis, or that no single loading on any factor was greater than .20. The final version of the scale included 32 items.

Six items from the Marlowe-Crowne Social Desirability scale (Crowne & Marlowe, 1964) were randomly interspersed with the instructional items. This short form of the scale has been reported to have a correlation of .86 with the total scale (Greenwald & Satow, 1970).

Students were not required to give their names on the instructor rating scale. After this scale was completed students were informed that a pre-registration procedure for the succeeding semester's educational psychology classes was being conducted. In order to help the school plan effectively with respect to assigning instructors to courses, students were asked to indicate whether they planned to take the second educational psychology course with the present instructor, or a different one. The pre-registration sheet appeared similar to formal departmental communications generally sent out to students, and as far as could be ascertained

was taken at face value.

Data was collected in March and April, 1974, during a regularly scheduled class period. Instructors were absent from the classroom during the administration of the forms. Debriefing of students as to the purposes of the experiment did not occur until data from all of the classes had been collected. Students were informed that the instructor rating form was being administered for research purposes.

A total of 158 students in seven educational psychology classes at the City College of New York served as subjects.

Results

Responses to the instructor rating scale were submitted to a principal components factor analysis and varimax rotation. A total of seven factors with Eigen values above one were extracted. Since the first six factors yielded the most interpretable solution, and appeared most similar to results reported by McKeachie (1971) this solution was used for further analysis[3].

Of the six interpretable factors used in this study, the first factor labeled Instructor Skill accounted for .30 of the total variance, and .48 of the common variance. Factors two through six were identified in order as: 2) Evaluation and Feedback, 3) Friendly Classroom Atmosphere, 4) Classroom Organization, 5) Standards, and 6) Assignments. All together these factors accounted for .33 percent of the total variance.

Factor scores for each student were then computed on the basis of these results.

The relationship between factor scores and students' intention to re-register were examined by stepwise multiple regression analysis. Since an interaction between SD and instructor rating had been predicted, the SD items were averaged, and interaction terms for each factor developed by cross multiplying factor scores with the SD means. A total of thirteen scores were then available as independent variables for each student: the six factor scores, the mean SD score, and six interaction terms. The criterion consisted of the students' intention to re-register for the same instructor in the succeeding semester. Due to missing data the regression analysis was based on the total of 116 subjects.

In the regression analysis no predictor variable was forced into the equation, thus, the 13 predictors could enter the equation in the order with which they accounted for independent variance in the criterion. Only the first factor, Instructor Skill, entered the equation. The correlation of this factor with the criterion was .72, accounting for 52% of the variance in the criterion, and yielding an F of 124.49, significant beyond the .001 level. Neither SD, nor any other rating scale factor, nor any interaction term between SD and any factor accounted for significant variance in the criterion, whether factor 1 was partialled out, or not. With factor one partialled out, factor four, Organization had a correlation of - .14 with the criterion, and

factor two, Evaluation and Feedback, correlated .10 with the criterion. Neither of these were significant at the .05 level. The remaining partial correlations were all below .10, and, of course, non-significant. None of the correlations between any of the factors and SD were significant, neigher were the correlations between SD, and the criterion.

Discussion

The results of this study indicate that a factor of generalized teacher competence is strongly associated with student intention to take further coursework with an instructor. Furthermore, all of the dimensions of students' rating of instructors appeared relatively unaffected by SD. Finally, SD was unrelated to students' intention, nor did it interact with any of the factors to modify students' intentions.

The results of this investigation provide evidence favoring the use of student ratings of instructors. The findings indicate that students' attitudes toward instructors are such that they appear to be highly related to the liklihood that the students will expose themselves to the same instructor again. If one of the outcomes of instruction is considered to be arousing motivation to learn more from a particular instructor, the results of this study provide evidence for the validity of the use of student ratings for this purpose.

It may be interesting to employ similar procedures in attitude scales

administered in innovative educational programs. When such programs are evaluated, students' attitudes towards the innovation typically provide an important source of data. Yet, the critical test of the importance of student attitudes towards such innovations would appear to be whether students, given the choice, would be likely to request further instruction by the innovative methodology, or by a number of comparable instructional strategies. It would appear that a truly successful instructional procedure would be one which, in addition to enabling students to master instructional objectives, would be freely selected by students for further study. Failure to select a particular instructional method in the future, even if such instruction results in the accomplishment of instructional objectives, would imply that the methodology was ultimately unsuccessful since students resisting exposure to such instruction are eventually likely to sabotage it. To test the applicability of this method of evaluation for these programs, it would appear to be useful to pretend that additional modules, or lectures, or instructional programs are available. Students could then be asked to register for the additional instruction either by selecting the new strategy, or any others. Such evaluation may be of considerable importance in determining the usefulness of different instructional methods.

The failure of social desirability to contribute significantly to the results was quite unexpected. Two aspects in the procedures of this investigation may have contributed to this finding. First, students were not

required to supply their names on either the instructor rating sheet, or the pre-registration form. Such anonymity may have worked against the importance of social desirability, since students were aware of the fact that they were anonymous and could not gain any approval by pretending to have more favorable attitudes than they actually possessed. Second, administration of the instructor rating scale was presented as being part of a research project. Students could, then, feel that there was little consequence to the instructor as a result of the attitudes expressed. Students may also have believed that the instructors would never be informed of the ratings even in terms of means, and hence may have seen little reason for pretending more favorable attitudes than they held. Perhaps future investigations with modification in these aspects of the procedures may find social desirability contributes more importantly to student ratings.

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Footnotes

1. This study was partially supported by the Division of Teacher Education, of The City University of New York. Special gratitude is extended to Dr. Max Weiner for making resources for the conduct of this study available, and to the instructors for volunteering to participate.

2. Now at the New York City Board of Education.

3. Copies of the questionnaires used in this study, the correlation matrix, the principal components output, and the varimax rotation results will be deposited in the National Auxiliary Publication Service (number to be supplied at a later date).

QUESTIONNAIRE

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INSTRUCTIONS: We are interested in people's attitudes toward instructors, courses, and a number of social situations. Please read the questions below and indicate on the scale at the right how often each of these behaviors occurs by placing an "X" in the appropriate space.

	NEVER OCCURS	SELDOM OCCURS	OCCASIONALLY OCCURS	OFTEN OCCURS	ALMOST ALWAYS OCCURS
1. In this class students learned how to think more clearly about the subject matter of this course.					
2. In this class students gained a great deal of knowledge about this content.					
3. Students argued with one another or with the instructor, not necessarily with hostility.					
4. The instructor appears sensitive to students feeling and problems.					
5. The instructor was skillful in observing student reactions.					
6. The instuctor stressed high quality work.					
7. The teacher was permissive and flexible.					
8. The instructor discussed test material after each quiz or exam.					
9. The teacher continually emphasized grades.					
10. In this class, I felt free to ask questions, to express my opinions, and disagree.					
11. I sometimes fell resentful when I don't get my own way.					
12. The instructor was fair in grading and evaluation.					
13. The teacher listened attentively to what class members had to say.					
14. I am quick to admit making a mistake.					
15. This course was well-organized.					
16. The instructor kept students well-informed of their progress.					

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	NEVER OCCURS	SELDOM OCCURS	OCCASIONALLY OCCURS	OFTEN OCCURS	ALMOST ALWAYS OCCURS	
17. I have sometimes taken unfair advantage of another person.						
18. The teacher told students when they had done a particularly good job.						
19. The instructor assigned very difficult readings.						
20. The teacher was friendly.						
21. The students in the class were friendly.						
22. The instructor increased the interest of class members in this class.						
23. The students frequently volunteered their own opinions.						
24. No matter who I'm talking to, I'm always a good listener.						
25. The content of examinations was appropriate.						
26. I sometimes try to get even rather than forgive and forget.						
27. The teacher lets students know when they were wrong.						
28. The instructor had everything going according to schedule.						
29. The teacher was tolerant of students opinions.						
30. The instructor followed the outline closely.						
31. The teacher explained clearly and the explanations were to the point.						
32. The instructor stimulated the intellectual curiosity of the students.						
33. The instructor put his material across in an interesting way.						

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	NEVER OCCURS	SELDOM OCCURS	OCCASIONALLY OCCURS	OFTEN OCCURS	ALMOST ALWAYS OCCURS
34. The teacher criticized poor work					
35. The instructor decided in detail what should be done and how it should be done.					
36. I am always courteous, even to people who are disagreeable.					

37. How would you rate your instructor in general (all-around) teaching ability?

___an outstanding and stimulating instructor
___a very good instructor
___a good instructor
___an adequate, but not stimulating instructor
___a poor and inadequate instructor

38. How would you rate the overall value of this course?

___superior
___very good
___good
___fair
___poor

Please feel free to add any additional comments below.

The City College
SCHOOL OF EDUCATION

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We are presently organizing next semester's schedule. The next course in the education sequence, ED 36, will be taught by your present instructor as well as others. In order to plan effectively, please indicate whether you intend to take the next course with the same instructor.

☐ Yes, I will be taking ED 36 with my present instructor.

☐ No, I will be taking ED 36 with a different instructor.

CORRELATIONS OF TEVAL1 FILE TVRMAT

POSITION	LABEL	1 ITEM01	2 ITEM02	3 ITEM03	4 ITEM04	5 ITEM05	6 ITEM06	7 ITEM07	8 ITEM08
1	ITEM01	1.000	0.701	0.287	0.514	0.527	0.283	0.448	0.086
2	ITEM02	0.701	1.000	0.225	0.513	0.599	0.401	0.493	0.172
3	ITEM03	0.287	0.225	1.000	0.277	0.354	0.156	0.188	0.044
4	ITEM04	0.514	0.513	0.277	1.000	0.589	0.122	0.464	-0.027
5	ITEM05	0.527	0.599	0.354	0.589	1.000	0.341	0.437	0.108
6	ITEM06	0.283	0.401	0.156	0.122	0.341	1.000	0.132	0.043
7	ITEM07	0.448	0.493	0.188	0.464	0.437	0.132	1.000	0.263
8	ITEM08	0.086	0.172	0.044	-0.027	0.108	0.043	0.263	1.000
9	ITEM09	0.002	0.007	0.028	-0.050	-0.058	0.259	-0.089	0.162
10	ITEM10	0.346	0.408	0.092	0.399	0.406	0.072	0.349	0.078
11	ITEM11	0.466	0.503	0.158	0.367	0.536	0.246	0.353	0.550
12	ITEM12	0.495	0.498	0.247	0.495	0.633	0.271	0.445	0.273
13	ITEM13	0.600	0.698	0.245	0.514	0.567	0.366	0.475	0.351
14	ITEM14	0.483	0.428	0.246	0.390	0.507	0.244	0.452	0.267
15	ITEM15	0.313	0.389	0.246	0.377	0.466	0.229	0.349	0.174
16	ITEM16	-0.051	-0.075	-0.046	0.039	-0.100	0.058	-0.214	-0.103
17	ITEM17	0.382	0.357	0.062	0.397	0.484	0.108	0.435	0.188
18	ITEM18	0.155	0.208	0.030	0.074	0.126	0.006	0.087	0.055
19	ITEM19	0.616	0.604	0.287	0.517	0.606	0.230	0.538	0.219
20	ITEM20	0.271	0.400	0.224	0.249	0.421	0.193	0.395	-0.012
21	ITEM21	0.199	0.207	0.232	-0.036	0.254	0.192	0.154	0.682
22	ITEM22	0.071	0.194	-0.147	0.001	0.165	0.180	0.113	0.274
23	ITEM23	0.381	0.414	-0.046	0.258	0.285	0.199	0.329	0.047
24	ITEM24	0.476	0.486	0.156	0.404	0.553	0.228	0.464	0.111
25	ITEM25	0.260	0.398	-0.015	0.186	0.244	0.238	0.250	0.158
26	ITEM26	0.425	0.461	0.163	0.419	0.515	0.217	0.339	0.096
27	ITEM27	0.618	0.691	0.244	0.505	0.651	0.322	0.468	0.134
28	ITEM28	0.661	0.673	0.201	0.595	0.582	0.248	0.500	0.050
29	ITEM29	-0.123	-0.142	0.032	-0.175	-0.124	0.232	-0.225	-0.164
30	ITEM30	0.038	0.078	-0.062	-0.076	-0.051	0.207	-0.108	-0.005
31	ITEM31	-0.676	-0.619	-0.276	-0.615	-0.661	-0.208	-0.450	-0.121
32	ITEM32	-0.618	-0.631	-0.278	-0.532	-0.555	-0.291	-0.424	-0.161

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CORRELATIONS OF TEVAL1 FILE TVRMAT

POSITION	LABEL	9	10	11	12	13	14	15	16
		ITEM09	ITEM10	ITEM11	ITEM12	ITEM13	ITEM14	ITEM15	ITEM16
1	ITEM01	0.002	0.346	0.466	0.495	0.600	0.483	0.313	-0.051
2	ITEM02	0.007	0.408	0.503	0.498	0.698	0.428	0.389	-0.075
3	ITEM03	0.028	0.092	0.158	0.247	0.245	0.246	0.246	-0.046
4	ITEM04	-0.050	0.399	0.367	0.495	0.514	0.390	0.377	0.039
5	ITEM05	-0.058	0.406	0.536	0.633	0.567	0.507	0.466	-0.100
6	ITEM06	0.259	0.072	0.246	0.271	0.366	0.244	0.229	0.058
7	ITEM07	-0.069	0.349	0.353	0.445	0.475	0.452	0.349	-0.214
8	ITEM08	0.162	0.078	0.550	0.273	0.351	0.267	0.174	-0.103
9	ITEM09	1.000	-0.099	-0.132	-0.082	-0.017	0.109	-0.172	0.112
10	ITEM10	-0.099	1.000	0.315	0.452	0.289	0.200	0.249	-0.120
11	ITEM11	-0.132	0.315	1.000	0.639	0.617	0.569	0.503	-0.106
12	ITEM12	-0.082	0.452	0.639	1.000	0.570	0.478	0.367	-0.165
13	ITEM13	-0.017	0.289	0.617	0.570	1.000	0.528	0.397	-0.131
14	ITEM14	0.109	0.200	0.569	0.478	0.528	1.000	0.522	-0.074
15	ITEM15	-0.172	0.249	0.503	0.367	0.397	0.522	1.000	-0.000
16	ITEM16	0.112	-0.120	-0.106	-0.165	-0.131	-0.074	-0.000	1.000
17	ITEM17	-0.151	0.503	0.559	0.601	0.444	0.356	0.385	-0.213
18	ITEM18	-0.072	0.300	0.170	0.123	0.164	0.111	0.219	-0.041
19	ITEM19	-0.034	0.398	0.616	0.590	0.716	0.628	0.414	-0.206
20	ITEM20	-0.129	0.344	0.175	0.370	0.426	0.224	0.256	-0.046
21	ITEM21	0.121	0.077	0.584	0.355	0.359	0.382	0.186	-0.203
22	ITEM22	0.137	0.072	0.214	0.066	0.078	0.198	0.204	0.145
23	ITEM23	0.078	0.143	0.266	0.295	0.386	0.300	0.189	-0.072
24	ITEM24	-0.090	0.354	0.501	0.626	0.630	0.493	0.417	-0.070
25	ITEM25	0.011	0.260	0.321	0.249	0.386	0.239	0.272	-0.064
26	ITEM26	-0.153	0.361	0.536	0.557	0.553	0.460	0.269	-0.113
27	ITEM27	-0.040	0.359	0.563	0.609	0.717	0.516	0.369	-0.216
28	ITEM28	-0.078	0.415	0.461	0.562	0.656	0.530	0.346	-0.192
29	ITEM29	0.167	-0.183	-0.209	-0.285	-0.161	0.026	-0.043	0.198
30	ITEM30	0.319	-0.080	0.020	-0.041	0.064	0.068	-0.019	0.288
31	ITEM31	0.068	-0.408	-0.553	-0.584	-0.656	-0.569	-0.417	0.251
32	ITEM32	0.037	-0.281	-0.546	-0.427	-0.636	-0.579	-0.361	0.104

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CORRELATIONS OF TEVAL1 FILE TVRMAT

POSITION	LABEL	17	18	19	20	21	22	23	24
		ITEM17	ITEM18	ITEM19	ITEM20	ITEM21	ITEM22	ITEM23	ITEM24
1	ITEM01	0.382	0.155	0.616	0.271	0.199	0.071	0.381	0.476
2	ITEM02	0.357	0.208	0.604	0.400	0.287	0.194	0.414	0.486
3	ITEM03	0.062	0.030	0.287	0.224	0.232	-0.147	-0.046	0.156
4	ITEM04	0.397	0.074	0.517	0.249	-0.036	0.001	0.258	0.404
5	ITEM05	0.484	0.126	0.606	0.421	0.254	0.165	0.285	0.553
6	ITEM06	0.108	0.006	0.230	0.193	0.192	0.180	0.199	0.228
7	ITEM07	0.435	0.087	0.538	0.395	0.154	0.113	0.329	0.464
8	ITEM08	0.188	0.055	0.219	-0.012	0.682	0.274	0.047	0.111
9	ITEM09	-0.151	-0.072	-0.034	-0.129	0.121	0.137	0.078	-0.090
10	ITEM10	0.503	0.300	0.398	0.344	0.077	0.072	0.143	0.354
11	ITEM11	0.559	0.170	0.616	0.175	0.584	0.214	0.266	0.501
12	ITEM12	0.601	0.123	0.590	0.370	0.355	0.066	0.295	0.626
13	ITEM13	0.444	0.164	0.716	0.426	0.359	0.078	0.386	0.630
14	ITEM14	0.356	0.111	0.628	0.224	0.382	0.198	0.300	0.493
15	ITEM15	0.385	0.219	0.414	0.256	0.186	0.204	0.189	0.417
16	ITEM16	-0.213	-0.041	-0.206	-0.046	-0.203	0.145	-0.072	-0.070
17	ITEM17	1.000	0.284	0.549	0.289	0.201	0.086	0.200	0.565
18	ITEM18	0.284	1.000	0.162	0.246	-0.106	-0.003	0.068	0.227
19	ITEM19	0.549	0.162	1.000	0.406	0.342	0.069	0.318	0.528
20	ITEM20	0.289	0.246	0.406	1.000	0.004	0.156	0.210	0.413
21	ITEM21	0.201	-0.106	0.342	0.004	1.000	0.218	0.161	0.148
22	ITEM22	0.086	-0.003	0.069	0.156	0.218	1.000	0.303	0.128
23	ITEM23	0.200	0.068	0.318	0.210	0.161	0.303	1.000	0.333
24	ITEM24	0.565	0.227	0.528	0.413	0.148	0.128	0.333	1.000
25	ITEM25	0.299	0.032	0.242	0.170	0.131	0.338	0.560	0.363
26	ITEM26	0.475	0.146	0.634	0.315	0.135	0.063	0.279	0.502
27	ITEM27	0.483	0.169	0.805	0.398	0.244	0.038	0.297	0.515
28	ITEM28	0.436	0.078	0.730	0.323	0.187	0.070	0.328	0.500
29	ITEM29	-0.340	-0.004	-0.179	0.016	-0.115	0.064	-0.126	-0.190
30	ITEM30	-0.126	-0.024	-0.013	-0.052	-0.054	0.201	0.121	-0.012
31	ITEM31	-0.492	-0.118	-0.735	-0.247	-0.307	-0.075	-0.286	-0.487
32	ITEM32	-0.361	-0.159	-0.649	-0.270	-0.327	-0.039	-0.357	-0.434

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CORRELATIONS OF TEVAL1 FILE TVRMAT

POSITION	LABEL	25	26	27	28	29	30	31	32
		ITEM25	ITEM26	ITEM27	ITEM28	ITEM29	ITEM30	ITEM31	ITEM32
1	ITEM01	0.260	0.425	0.618	0.661	-0.123	0.038	-0.676	-0.618
2	ITEM02	0.398	0.461	0.691	0.673	-0.142	0.078	-0.619	-0.631
3	ITEM03	-0.015	0.163	0.244	0.201	0.032	-0.062	-0.276	-0.278
4	ITEM04	0.186	0.418	0.505	0.595	-0.175	-0.076	-0.615	-0.532
5	ITEM05	0.244	0.515	0.651	0.582	-0.124	-0.051	-0.661	-0.555
6	ITEM06	0.238	0.217	0.322	0.248	0.232	0.207	-0.208	-0.291
7	ITEM07	0.250	0.339	0.468	0.500	-0.225	-0.108	-0.450	-0.424
8	ITEM08	0.158	0.096	0.134	0.050	-0.164	-0.005	-0.121	-0.161
9	ITEM09	0.011	-0.153	-0.040	-0.078	0.167	0.319	0.068	0.037
10	ITEM10	0.260	0.361	0.359	0.415	-0.183	-0.080	-0.408	-0.281
11	ITEM11	0.321	0.536	0.563	0.461	-0.209	0.020	-0.553	-0.546
12	ITEM12	0.249	0.557	0.609	0.562	-0.285	-0.041	-0.584	-0.427
13	ITEM13	0.386	0.553	0.717	0.656	-0.161	0.064	-0.656	-0.636
14	ITEM14	0.239	0.460	0.516	0.530	0.026	0.068	-0.569	-0.579
15	ITEM15	0.272	0.289	0.369	0.346	-0.043	-0.019	-0.417	-0.361
16	ITEM16	-0.064	-0.113	-0.216	-0.192	0.198	0.288	0.251	0.108
17	ITEM17	0.299	0.475	0.483	0.436	-0.340	-0.126	-0.492	-0.361
18	ITEM18	0.032	0.146	0.169	0.078	-0.004	-0.024	-0.118	-0.159
19	ITEM19	0.242	0.634	0.805	0.730	-0.179	-0.013	-0.735	-0.649
20	ITEM20	0.170	0.315	0.398	0.323	0.016	-0.052	-0.247	-0.270
21	ITEM21	0.131	0.135	0.244	0.187	-0.115	-0.054	-0.307	-0.327
22	ITEM22	0.338	0.063	0.038	0.070	0.064	0.201	-0.075	-0.039
23	ITEM23	0.560	0.279	0.297	0.328	-0.126	0.121	-0.286	-0.357
24	ITEM24	0.363	0.502	0.515	0.500	-0.190	-0.012	-0.487	-0.434
25	ITEM25	1.000	0.262	0.290	0.316	-0.122	0.215	-0.273	-0.183
26	ITEM26	0.262	1.000	0.670	0.690	-0.165	0.034	-0.644	-0.572
27	ITEM27	0.290	0.670	1.000	0.809	-0.140	0.006	-0.768	-0.663
28	ITEM28	0.316	0.690	0.809	1.000	-0.244	-0.030	-0.852	-0.757
29	ITEM29	-0.122	-0.165	-0.140	-0.244	1.000	0.217	0.257	0.113
30	ITEM30	0.215	0.034	0.006	-0.030	0.217	1.000	0.054	0.040
31	ITEM31	-0.273	-0.644	-0.768	-0.852	0.257	0.054	1.000	0.773
32	ITEM32	-0.183	-0.572	-0.663	-0.757	0.113	0.040	0.773	1.000

BEST COPY AVAILABLE

FACTOR PROGRESS.

ITERATION 1 IS DONE. NOW ASSUME 7 SIGNIFICANT ROOTS.

11.5701	2.3640	2.0393	1.7114	1.4047	1.0882	1.0540	0.9750	0.9106	0.8095
0.7986	0.7796	0.7015	0.6276	0.5748	0.5032	0.4591	0.4527	0.4209	0.3880
0.3462	0.3029	0.2736	0.2580	0.2478	0.2241	0.1814	0.1486	0.1180	0.1087
0.0899	0.0681								

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	ROOTS	PCT	CUM. PCT	ORIG. DIAG	FINAL DIAG USED	NEW DIAG	
1	11.570068	36.2	36.2	1.0000	1.0000	0.6192	ITEM01
2	2.363963	7.4	43.5	1.0000	1.0000	0.6896	ITEM02
3	2.039271	6.4	49.9	1.0000	1.0000	0.5826	ITEM03
4	1.711399	5.3	55.3	1.0000	1.0000	0.6471	ITEM04
5	1.404680	4.4	59.7	1.0000	1.0000	0.6651	ITEM05
6	1.088206	3.4	63.1	1.0000	1.0000	0.5297	ITEM06
7	1.054024	3.3	66.3	1.0000	1.0000	0.5518	ITEM07
8	0.974952	3.0	69.4	1.0000	1.0000	0.7893	ITEM08
9	0.910551	2.8	72.2	1.0000	1.0000	0.5289	ITEM09
10	0.809522	2.5	74.8	1.0000	1.0000	0.5062	ITEM10
11	0.798645	2.5	77.3	1.0000	1.0000	0.8316	ITEM11
12	0.779572	2.4	79.7	1.0000	1.0000	0.6254	ITEM12
13	0.701462	2.2	81.9	1.0000	1.0000	0.7093	ITEM13
14	0.627563	2.0	83.9	1.0000	1.0000	0.6043	ITEM14
15	0.574794	1.8	85.7	1.0000	1.0000	0.6401	ITEM15
16	0.503179	1.6	87.2	1.0000	1.0000	0.6724	ITEM16
17	0.459065	1.4	88.7	1.0000	1.0000	0.6783	ITEM17
18	0.452702	1.4	90.1	1.0000	1.0000	0.6396	ITEM18
19	0.420872	1.3	91.4	1.0000	1.0000	0.7541	ITEM19
20	0.388008	1.2	92.6	1.0000	1.0000	0.6627	ITEM20
21	0.346164	1.1	93.7	1.0000	1.0000	0.8323	ITEM21
22	0.302861	0.9	94.6	1.0000	1.0000	0.5805	ITEM22
23	0.273639	0.9	95.5	1.0000	1.0000	0.6678	ITEM23
24	0.257967	0.8	96.3	1.0000	1.0000	0.5860	ITEM24
25	0.247780	0.8	97.1	1.0000	1.0000	0.6563	ITEM25
26	0.224114	0.7	97.8	1.0000	1.0000	0.6147	ITEM26
27	0.181424	0.6	98.3	1.0000	1.0000	0.7940	ITEM27
28	0.148573	0.5	98.8	1.0000	1.0000	0.8471	ITEM28
29	0.118036	0.4	99.2	1.0000	1.0000	0.5741	ITEM29
30	0.108743	0.3	99.5	1.0000	1.0000	0.6092	ITEM30
31	0.089878	0.3	99.8	1.0000	1.0000	0.8333	ITEM31
32	0.068103	0.2	100.0	1.0000	1.0000	0.7084	ITEM32

LAST DIAG SUM = 32.000000

SUM OF ROOTS = 31.999588

PRINT=3/TVPC$

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Principal Components Output

USABLE FACTORS OF TVRMAT

FILE TVPC.6

POSITION	LABEL	1	2	3	4	5	6
		L1	L2	L3	L4	L5	L6
1	ITEM01	-0.738	0.000	-0.201	-0.130	0.130	-0.004
2	ITEM02	-0.785	0.116	-0.184	0.008	0.078	-0.141
3	ITEM03	-0.319	-0.068	-0.066	-0.501	-0.338	-0.188
4	ITEM04	-0.653	-0.236	-0.255	-0.066	0.045	0.227
5	ITEM05	-0.776	-0.044	-0.103	-0.066	-0.159	0.000
6	ITEM06	-0.359	0.449	-0.313	-0.147	-0.125	-0.242
7	ITEM07	-0.633	-0.102	0.070	0.122	0.016	-0.225
8	ITEM08	-0.282	0.446	0.698	-0.031	-0.124	-0.005
9	ITEM09	0.070	0.558	-0.149	-0.224	0.113	-0.192
10	ITEM10	-0.515	-0.250	-0.008	0.321	-0.152	-0.072
11	ITEM11	-0.741	0.203	0.389	0.011	-0.136	0.257
12	ITEM12	-0.762	-0.065	0.160	0.056	-0.093	0.033
13	ITEM13	-0.826	0.117	-0.006	-0.060	0.034	-0.073
14	ITEM14	-0.689	0.233	0.037	-0.175	-0.122	0.144
15	ITEM15	-0.556	0.069	0.020	0.102	-0.408	0.230
16	ITEM16	0.191	0.287	-0.409	0.057	-0.249	0.557
17	ITEM17	-0.649	-0.217	0.230	0.321	-0.123	0.090
18	ITEM18	-0.224	-0.168	-0.067	0.305	-0.456	-0.090
19	ITEM19	-0.849	-0.057	0.022	-0.140	0.027	-0.013
20	ITEM20	-0.470	-0.122	-0.239	0.222	-0.358	-0.426
21	ITEM21	-0.386	0.439	0.635	-0.276	-0.029	-0.098
22	ITEM22	-0.177	0.569	0.028	0.411	-0.046	0.045
23	ITEM23	-0.453	0.288	-0.146	0.375	0.384	-0.179
24	ITEM24	-0.707	-0.046	-0.044	0.250	-0.139	0.022
25	ITEM25	-0.426	0.336	-0.069	0.510	0.265	-0.089
26	ITEM26	-0.714	-0.126	-0.078	-0.003	0.096	0.182
27	ITEM27	-0.844	-0.079	-0.110	-0.152	0.108	-0.052
28	ITEM28	-0.833	-0.154	-0.157	-0.130	0.289	0.052
29	ITEM29	0.241	0.341	-0.431	-0.233	-0.375	-0.133
30	ITEM30	0.015	0.560	-0.379	0.081	0.072	0.222
31	ITEM31	0.847	0.140	0.025	0.200	-0.205	-0.111
32	ITEM32	0.773	0.012	0.089	0.282	-0.132	-0.075

ROTATE:
IN=TVPC.6,
VF=VFTVPC.6$

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8 ROTATION CYCLES INITIAL VARIANCE = 0.2142 VE

CYCLE	VARIANCE	CHANGE
1	0.3234	0.1092
2	0.3514	0.0280
3	0.3552	0.0039
4	0.3555	0.0003
5	0.3555	0.0000
6	0.3555	0.0000
7	0.3555	-0.0000
8	0.3555	0.0

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NOTE - PERCENT OF VARIANCE FOR A ROTATED FACTOR IS THE SUM OF SQUARES OF THE ROTATED FACTOR DIVIDED BY THE NUMBER OF VARIABLES, TIMES 100.

		FACTOR SUM OF SQUARES	PERCENT OF VARIANCE	CUMULATIVE PERCENT
1	L1	9.5789	29.9	29.9
2	L2	2.6907	8.4	38.3
3	L3	2.5409	7.9	46.3
4	L4	2.1007	6.6	52.8
5	L5	1.8457	5.8	58.6
6	L6	1.4200	4.4	63.1

PRINT=3/VFIVPC.6$

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Varimax Rotation Output

VERIMAX FACTORS OF TVPC.6

FILE VFTVPC.6

POSITION	LABEL	1	2	3	4	5	6
		L1	L2	L3	L4	L5	L6
1	ITEM01	0.763	0.016	0.089	0.119	0.116	-0.036
2	ITEM02	0.717	0.082	0.214	0.271	0.203	-0.092
3	ITEM03	0.345	0.119	0.162	-0.459	0.357	-0.114
4	ITEM04	0.728	-0.135	0.162	-0.024	-0.114	0.131
5	ITEM05	0.704	0.140	0.346	0.007	0.091	0.010
6	ITEM06	0.303	0.095	0.104	0.175	0.616	0.057
7	ITEM07	0.501	0.130	0.322	0.178	-0.030	-0.280
8	ITEM08	0.034	0.872	0.012	0.114	-0.008	-0.082
9	ITEM09	-0.049	0.126	-0.293	0.182	0.548	0.028
10	ITEM10	0.364	-0.008	0.511	0.142	-0.190	-0.100
11	ITEM11	0.564	0.645	0.205	0.104	-0.146	0.135
12	ITEM12	0.627	0.305	0.333	0.082	-0.120	-0.069
13	ITEM13	0.737	0.257	0.196	0.185	0.127	-0.092
14	ITEM14	0.621	0.380	0.129	0.032	0.153	0.157
15	ITEM15	0.404	0.292	0.455	-0.012	-0.012	0.298
16	ITEM16	-0.110	-0.133	-0.017	0.004	0.128	0.784
17	ITEM17	0.461	0.236	0.470	0.151	-0.364	-0.057
18	ITEM18	0.041	-0.017	0.622	-0.015	-0.025	0.043
19	ITEM19	0.804	0.214	0.194	0.036	0.015	-0.115
20	ITEM20	0.283	-0.106	0.666	0.093	0.251	-0.212
21	ITEM21	0.215	0.846	-0.120	0.015	0.132	-0.195
22	ITEM22	-0.038	0.313	0.149	0.565	0.159	0.249
23	ITEM23	0.347	-0.005	0.034	0.696	0.089	-0.120
24	ITEM24	0.551	0.127	0.460	0.220	-0.072	0.032
25	ITEM25	0.253	0.091	0.143	0.738	0.017	-0.008
26	ITEM26	0.719	0.051	0.147	0.095	-0.145	0.056
27	ITEM27	0.843	0.078	0.150	0.071	0.065	-0.135
28	ITEM28	0.901	-0.035	0.022	0.125	-0.062	-0.111
29	ITEM29	-0.209	-0.128	0.062	-0.160	0.644	0.262
30	ITEM30	0.016	-0.034	-0.173	0.366	0.350	0.480
31	ITEM31	-0.695	-0.112	-0.027	-0.025	0.094	0.084
32	ITEM32	-0.627	-0.130	0.001	0.009	-0.077	0.030

SAVE=VFTVPC.6$

FILE VFTVPC.6, 32 ROWS BY 6 COLUMNS, HAS BEEN SAVED ON PDT 29 AS FILE 32, FIRST BLOCK IS 171.

EDIT$

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